The relationship of environment to communication in case of "Tea-friend"

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Abstract: In the hulistic communication, a number of tacit things such as non-verbal information, objects which make the environment, make the situation of the communication. Even though we cannot tell the effect, we sometimes prefer the situation, dislike the situation or tend to change the situation for better communication. It is very valuable to study how the tacit object works for the communication. In this paper, we focused on the so called 'Cha-nomi tomodachi (Tea-friend)'.

We sat up two different experimental communication environments: 1) without tea, and 2) with the tea. For each environment, we hired ten sets of two-person conversation.

We expect that the behavior of conversation can show the difference of the existing of tea. For analysis, we checked out the distance data of panels during the conversation of from the video record.

The major findings of the research as a result of time-dependent analysis are follows,

1. With a tea drinking, the panels' action became milder.
2. With a tea drinking, the panels' position tend to be closer.
3. Tea drinking give panels for a short time-rug that control the pace of conversation.

As a result, it is proved that tea drinking has an tacit and indirect effect on communication..

***Key words*:** *Kansei, Communication, Interface*

1. Introduction

When we communicate, the field such as situation, atomosphere and setting of objects, arrangement of the time are highly affected to communication. In our life, we naturally uses tea, or other object for eating or dinking. In Japanese, there is saying 'Cha-nomi Tomodachi' that means "Tea drinking friends". It represents the relationship that means friends tend to use tea-drinking as an opportunity of communication. On the other hand, there is 'tea ceremony' in Japanese traditional culture that can be considered as a communication support by style. On the other hand, *Kansei* is a subconscious mental-function that control the communication. In the drinking-tea situation, we supposed both *Kansei* and behavior works in relation to control the communication.

In that way, the In this paper, we study the function of tea, or drinking-tea, as a communication support through the behavior of friends.

2. Method

We used observation method for examining the relationship in tea-drinking situation. Two situation, communication with tea-drinking and without tea-drinking. We checked the result as examining and quantifying

the record. Through the comparison, the characteristics of tea-drinking as well as the related result was determined.

2.1 Experiment

Panel:

- University Students (18-24 year old, male:6, female:6) with one friend who are usually enjoy talking.
- Then it makes 12 pair of experimental situation (male-male: 5, female-female:5, male-female: 2)
- Divide 12 pair into two groups that enjoy 'communication **with** tea-drinking' and 'communication **without** tea-drinking'.

Fig.1. Situation

Fig.2. Experiment

Situation:

- Two panels are sat on face-to-face.
- For better talking,, showing one piece of photograph (digital) to make an opportunity of talking.
- However, panels can talk on any theme.
- Tea-drinking situation: place teacups, tea server and tiny snack between panels. Panels can freely serve them. First cups are served by examiner for ease to make situation.
- Non tea-drinking situation: without teacups and tea server.

Fig.3. Reviewing process

Fig.4. Picture used for reference in experiment

Experiment time and record:

- Before the experiment, 10 minutes of rehearsal was given to panels to get used to the condition.
- Experiment was 10 minutes and recorded by VCR from horizontal view.

- After the communication, panels are asked to answer their mood by in 30 seconds interval with reviewing the record. Fig. 5 shows the check seet.

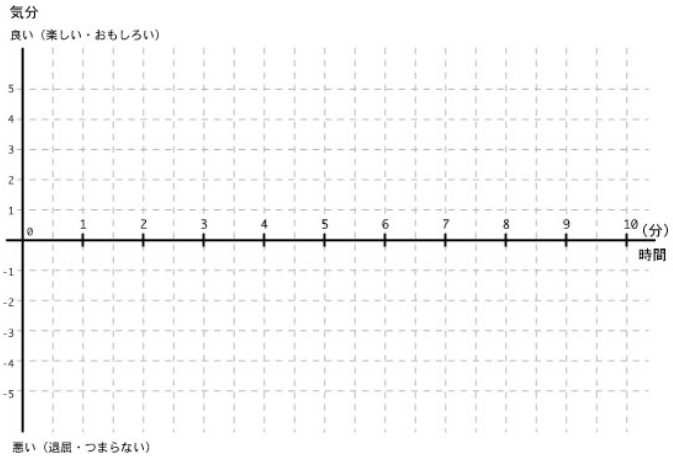

Fig. 5.mood check sheet.

2.2 Result of experiment

2.2.1 action of panel

Checking out the record, following actions are found in many panels.

Fig. 6. Nod, fingering.

Fig.7. Fingering, showing size.

Fig. 8. Move hands/fingers, drink tea

1. Action related to Communication	2. Action **not** related to Communication
・ Point number by fingers ・ Show size by fingers ・ Emulate object (motion) ・ Point out ・ Nod ・ Nod with drink ・ Nod or speak with holding tea	・ Touch hear ・ Touch arms ・ Touch face ・ Fingering ・ Rotate chair ・ Touch eyeglasses ・ Touch handkerchief ・ Touch accesories ・ Touch table ・ Change direction ・ Pour tea ・ Drink tea ・ Touch teacup ・ Eat snack

Table 1. action found in panels

2.2.2 mood of panel

With check sheet shown on fig.5, the change of mood was recorded as [positive (cheerful, happy) – negative (boring, not fun)] scale.

2.2.3 Distance of panels

Through the holistic inspection of VCR data, we found the distance, especially the changes of distance, between panels represent subconscious value of panels. Then we picked up a still shot of experiment in 5 second interval to measure their distance of eyes categorized by 16 distance range of their eyes. Then make index of distance by adding the range number of both panel. This index represents bigger number as close.

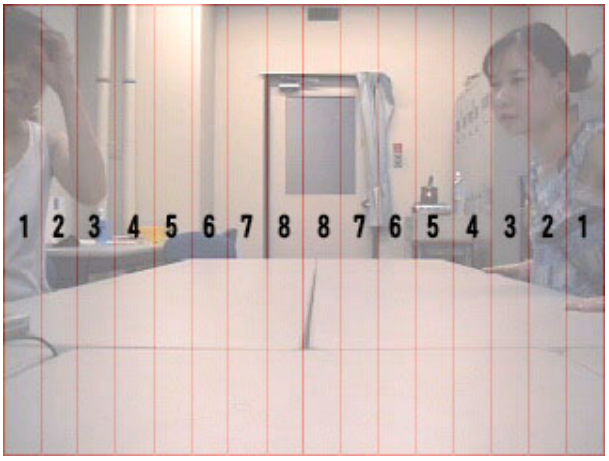

Fig. 9. Distance range

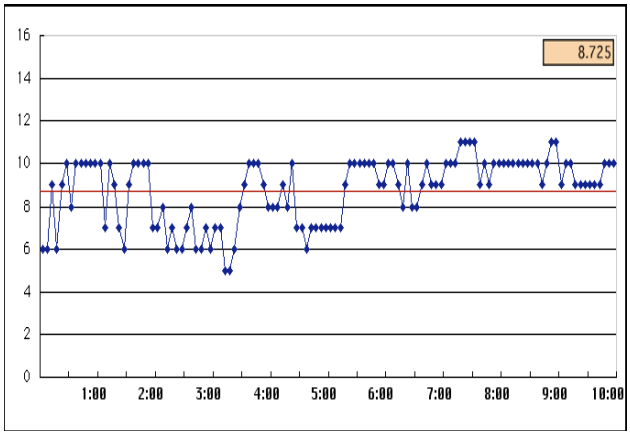

Fig. 10. changes of distance panel set 1

3. Analysis

3.1 measuring the relations

3.1.1 distance of panels

With the distance data, there suppose to be similarity between / amoung sets or situations.

set	With tea	set	Without tea
1	8.73	7	8.68
2	8.45	8	5.55
3	6.91	9	7.7
4	9.28	10	4.48
5	6.67	11	7.17
6	6.75	12	4.66

Table 2. Average of distance by all sets

P(T<=t) both side

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	0.13											
3	0	0										
4	0	0	0									
5	0	0	0.32	0								
6	0	0	0.58	0	0.69							
7	0.84	0.33	0	0.01	0	0						
8	0	0	0	0	0	0	0					
9	0	0	0.01	0	0	0	0	0				
10	0	0	0	0	0	0	0	0	0			
11	0	0	0.35	0	0.01	0.09	0	0	0.06	0		
12	0	0	0	0	0	0	0	0	0	0.48	0	

Table 3. Cross matrix of t-test between sets

This result of t-test shows the group [1, 2, 7], [3, 5, 6, (11)], [11, 12] have similar average. This means at least the sets with tea has potentially similar behavior.

group	*sample*	*sum*	*average*	*variance*
with tea	6	46.78333	7.797222	1.332074
without tea	6	38.225	6.370833	2.981965

ANOVA

sets	*variation*	*free order*	*variance*	*v. ratio*	*P value*	*F value*
among grou	6.103756	1	6.103756	2.829717	0.123447	4.964591
in group	21.5702	10	2.15702			
sum	27.67395	11				

Table 4. Result of ANOVA of the distance data

Then, the result of ANOVA of the distance data (table 4) shows the significant difference between the situations by p-value. Then 'with tea' situation makes panels more closer than 'without tea' situation.

3.1.2 fluctuations of panels' distance

Then, we focused on the variance of panel's distance. In this case, variance can be considered as fluctuations of panel's relation. The result of ANOVA of the variance of the distance data (table 5) do not show the significant difference between the situations by p-value. However, there is some tendency that 'with tea' situations are more stable in sense of fluctuation in communication.

group	*sample*	*sum*	*average*	*variance*
with tea	6	9.251642	1.54194	0.302154
without tea	6	11.56801	1.928002	0.287384

ANOVA

sets	*variation*	*free order*	*variance*	*v. ratio*	*P value*	*F value*
among grou	0.447131	1	0.447131	1.516885	0.246268	4.964591
in group	2.947691	10	0.294769			
sum	3.394822	11				

Table 5. Result of ANOVA of the variance of the distance

To check the trend more clearly, we applied the Fourier analysis to the time-dependent change data of panels' distance (table 6.) This result shows the 'with tea' situation tend to have longer cycle (= stable) of distance change. This can mean tea create moderate mood in panels' relationship.

	with tea (set number)						without tea (set number)					
Cycle (s)	1	2	3	4	5	6	7	8	9	10	11	12
0	13	1.8	6.5	4.1	3.2	13	48	4	39	4	29	48
5	17	2.3	10	5.7	4.2	21	53	11	81	7.8	30	62
10	20	4.1	22	7.2	6.2	32	43	19	131	13	20	73
15	21	6.6	38	7	7.8	27	27	11	95	9.8	13	63
20	20	7.9	50	6.4	6.1	16	18	4.5	53	5.6	16	34
25	18	11	70	4.7	9.1	19	25	5.5	32	5.1	14	20
30	17	9.9	77	3.7	16	25	31	5.4	13	6.6	9.1	24
35	8.1	8.5	44	3.2	15	13	18	5.3	6.3	4.1	6.6	17
40	2.8	9.3	16	2	12	4.5	6.2	4.4	11	1.9	8.3	7.7
45	4.1	7.2	7.6	1.4	10	5.8	4.3	2.1	21	2.7	9.4	8
50	7.6	3.1	8.6	0.9	6.3	7.1	4.9	2.2	28	3.6	5.8	12
55	8.5	2.2	11	0.7	4.2	4.7	5.3	3.6	26	2.6	3.1	11
60	4.3	3.5	9.1	1.2	5.5	3.2	11	2.5	22	3.7	4.2	11
65	1.6	4	8.2	1.7	5.1	3.7	22	1.2	16	6.7	6.8	14

Table 6. Result of Fourier analysis of the time-dependent changes of distance. Greater values indicate typical cycle of changes in panels' distance.

3.2 behavior of drinking

The timing of drinking tea is classified as follows.

- Break of talk
- End of talk
- Silent situation
- Opponent's drinking timing

Drinking behavior during the break or end of talk, the behavior of drinking are situated as follows.

1. Divert sight from the opponent

2. Hold cup and watch opponent
3. Drink with watching opponent
4. Divert sight from the opponent and place cup
5. Watch opponent

It takes 5-10 seconds for this process. In the centrally, drinking behavior during the silence tend to take 20 seconds or more and no typical manner of drinking.

3. Observation and Discussions

From the result of time-dependent observation, the presence of tea work as an opportunity of notice as well as action for panels. And it is considered as following effects for the tea-drinking situation.

1. With a tea drinking, the panels' action became milder.
2. With a tea drinking, the panels' position tend to be closer.
3. Tea drinking give panels for a short time-rug that control the pace of conversation.

Hall[2] reported the distance between panels are highly related to their intimacy. Oobo[6] reported also the closer distance make people more friendly.

Also, tea drinking force panels to use mouth for drinking. Then panels have to put 'break' in the conversation without terminating the conversation because the behavior of drinking presents the continuity of conversation. Then tea drinking can consider as create certain and moderate rhythm over the conversation. Kawana[7] reports speaker in conversation tend to regard opponents with nodding more friendly. In this case, nodding is a sign of natural reaction. In this study, tea-drinking often happened while opponent speaking. It considered as natural behavior as nodding.

Further more, teacups placed between panels collect panels' sight naturally. Another observed case was simultaneous drinking, especially while the conversation stopped. It could be a behavior to find next opportunity of conversation. According to the synchrony theory[8, 9], simultaneous action or imitated action create more friendly mood between people. All these effects produced by tea support friendly relationship.

Obviously, other situation such as board game or small puzzle can control peoples' notice like tea drinking. However game or puzzle tend to force panel think deeply. It became an obstacle of concentrating to the conversation as well as reducing the smooth rhythm that can be created by drinking tea.

4. Conclusions

In this study, a effect of tea-drinking was confirmed. Object or situation such as tea-drinking can subconsciously support our communication smoothly. This subconscious effect can be expect the relationship with *Kansei*. However In this case, we could not determine path from tea-drinking to the function of *Kansei*. It is expected to the further research as well as research on different situation such as gaming, eating or playing something.

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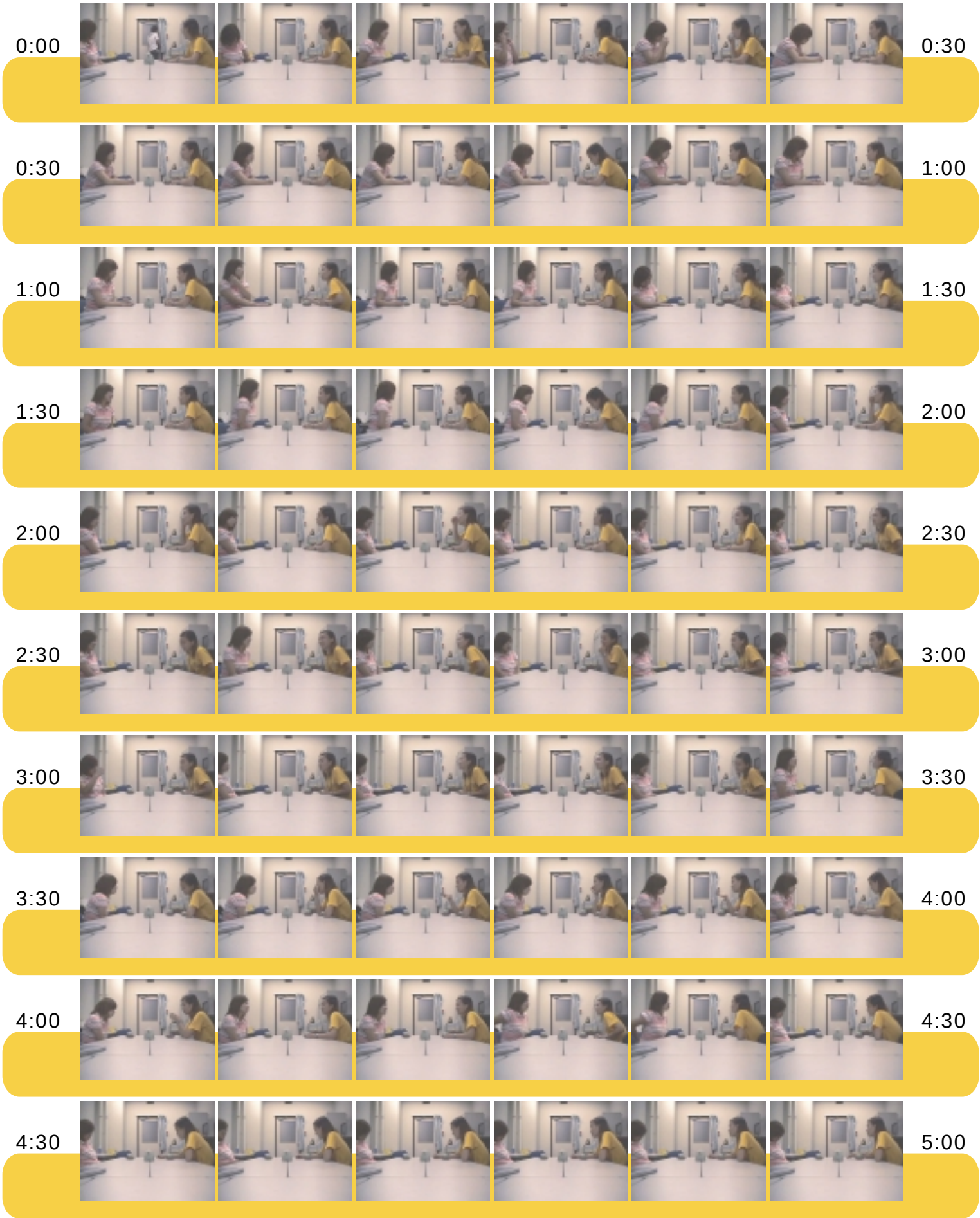
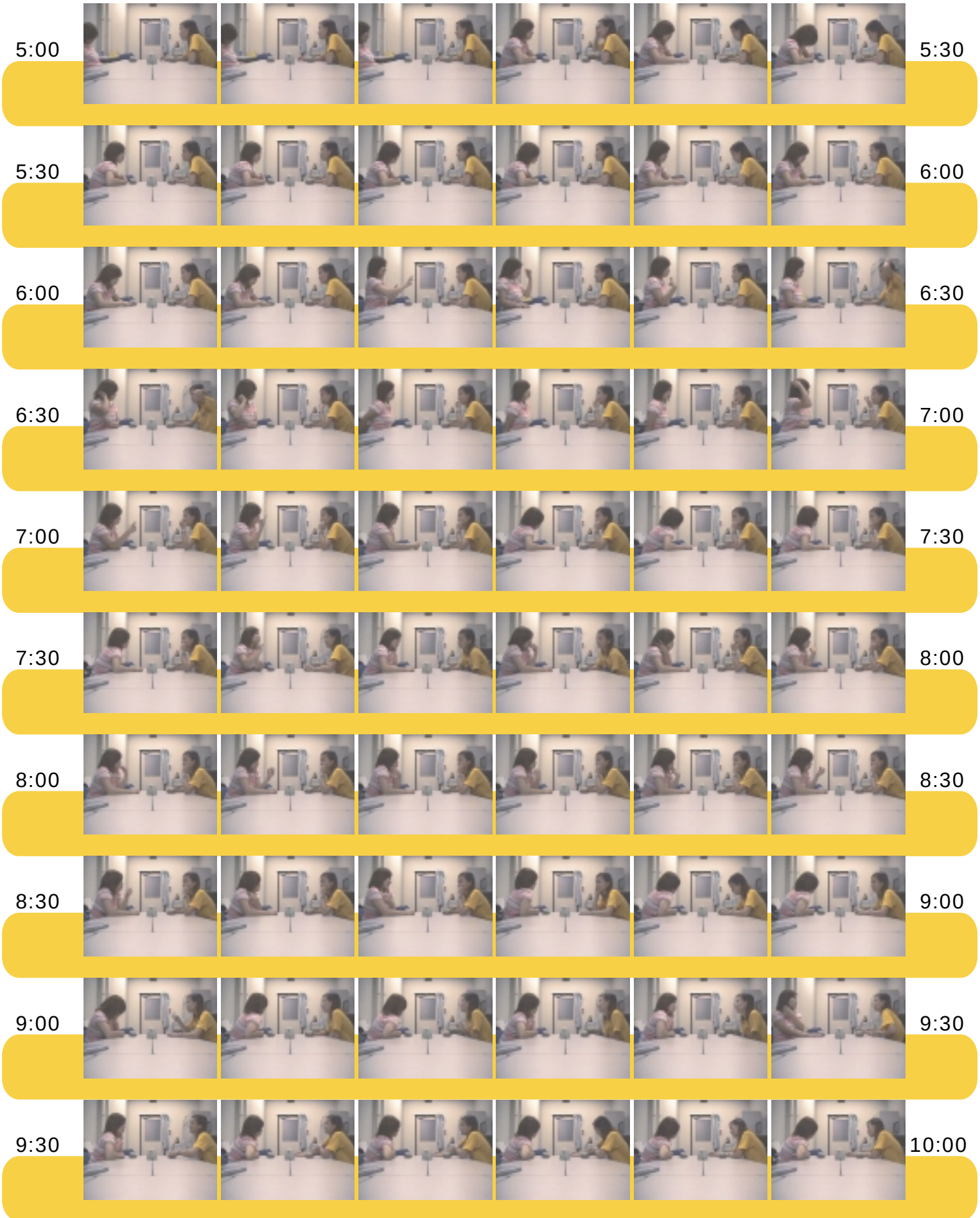
Appendix A

Example of record of experiment with tea-drinking



1st set with tea -1



1st set with tea -2